

**METHOD AND SYSTEM FOR DYNAMIC DISPLAY OF MARKETING
CAMPAIGNS ON DISPLAY LOCATIONS VIA A NETWORK**

Field of the Invention

5 The present invention relates in general to displaying advertising material and more specifically to a method and system for dynamic display of marketing campaigns on display locations via a network.

Background of the Invention

10 In today's economy, advertising and promotions play a significant role in marketing campaigns. Traditionally, one of the ways to deliver promotional messages has been via use of billboards and posters located in public places. This requires a long and inefficient process, involving graphic designers, printing houses, advertising agencies and billboard owners.

15 Since the life cycle of many products is quite short, a quick method of delivering advertising material is required. In the past, advertisers spent six or more months for advertising campaigns. Such lead times are becoming less and less feasible. The effectiveness of marketing tools depends heavily on timing, graphical form and attractiveness of the message presented. Consumers now expect dynamic multimedia displays as seen on
20 the Internet and graphic designers want to express themselves in a new ways. In contrast, prior art billboard and poster displays are generally static where one site is occupied by the same material for a long duration of time. Also, the content displayed on the billboards and posters is difficult to change.

25 Marketing has become a complicated international business process requiring many interactions between many global participants. The logistics of putting new content on or updating the billboards, for example in response to market fluctuations, is complicated and involves several parties, which raises the cost and extends the time from conception to actual display of the poster (i.e. a new printed poster to be installed over the old one). Furthermore,
30 campaign designers are forced to deal with many billboard operators with different business practices and requirements. This slows down delivery of campaign content and limits the flexibility in delivery method.

In recent years, an unprecedented growth in the economy has been experienced. An undisputed factor in this growth is the role of the Internet which enables business to be performed over the Internet. This includes broadcasting information about available products and services, taking orders for goods and enabling flow of information
5 between business participants.

Advertising has also become prevalent on the Internet as exemplified by US Patent 6,009,409 to Adler et al. and International patent application NO WO97/41546 to Hylin et al.. US Patent 6,009,409 is directed at a system for controlling timing and form of advertisements sent to users who are actively browsing the Internet. WO 97/41546 describes
10 a system which focuses on the control of displays over private local area networks with limited telephone access.

In both of these prior art systems, advertising material is shown to the user without the user's consent. The advertiser takes advantage of the fact that a user is browsing a screen and places their advertising in an available space. Also, both systems are susceptible
15 to unauthorized access since the owner of the display has no control over the advertising material.

In order to overcome the limitations of the prior art, there is provided a method and system for scheduling the dynamic display of marketing campaigns via a network.
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Summary of the Invention

The present invention provides a method and system for dynamic display of marketing campaigns via a ^{network} network. The system comprises a central server which contains information concerning display locations as well as available time slots. An advertiser
25 accesses the central server to select a time slot for a specific display location and then uploads the advertising material to the central server. Prior to the occurrence of the allotted time slot, the advertising material is uploaded to the display location and displayed at when the time slot occurs.

Integrity checks are performed on the advertising material to ensure that the
30 material is displayable.

The advertiser is also allowed to monitor the content being displayed so that the advertiser can see the advertising material allocated to a display location and time slot.

The display locations are computerized devices with a processor and an ability to communicate with the server. The basic functionality of the display location is to display advertising material, in the form of a valid image object, during the allocated time slot. Prior to expiry of validity of an image object allocated to a current time slot, the display location triggers a communication session with the server to upload the next valid object to be displayed.

Also, the present invention allows advertisers in a marketing campaign to access the server via the Internet. Since all information relating to advertising material (image objects), time slots and display locations flows through the server, the server aids in standardizing the method of doing business for advertisers. The server stores image objects, uploaded by the advertiser, in a central database to be downloaded to display locations when requested by the display location.

According to an aspect of the present invention, there is provided a system for dynamic display of marketing campaigns on display locations via a network comprising:

- a database for storing advertising material;
- at least one display location for displaying said advertising material;
- a server for managing said advertising material provided to said at least one display location; and
- a plurality of input sources for providing scheduling information and said advertising material to said server for scheduling said display of said advertising material on said at least one display location.

According to another aspect of the present invention, there is provided a method for dynamically displaying marketing campaigns on display locations via a network comprising the steps of:

- accessing a server, via said network, to retrieve available time slots associated with at least one display location;
- selecting a time slot from said available time slots for displaying advertising material;
- storing said advertising material in a database;
- uploading said advertising material to said display location prior to occurrence of said selected time slot; and
- displaying said advertising material at said display location when said time slot occurs.

According to yet another aspect of the present invention there is provided A computerized billboard comprising:

a display device;
 a communicator;
 5 an objects storage; and
 a processor;
 wherein said processor comprises:
 operating system software;
 display software;
 10 communication software;
 object manager software; and
 FTP/VPN transfer software.

Brief Description of the Detailed Drawings

15 An embodiment of the present invention will now be described more fully with reference to the accompanying drawings in which:

Figure 1 is a schematic diagram of the system of the present invention;

Figure 2 is a more detailed schematic diagram of the system of the present invention; and

20 Figures 3 – 6 are flowcharts detailing work flow processes according to the preferred embodiment.

General Description of the Preferred Embodiment

25 A schematic diagram of the information system for providing effective collaboration between marketing campaigns participants and secure delivery of advertising material to a display location is shown in Figure 1. The system 10 comprises a plurality of display locations 12 connected to a central server 14 which, in turn, is connected to a plurality of input sources 16 via the Internet 17. In the preferred embodiment, the input sources are personal computers.

30 Each display location 12 generally comprises at least one computerized device, preferably a computerized billboard, 18, a display device 20, a communicator 22, an objects storage 24 and a processor 26. The objects storage 24 is preferably non-volatile memory. The billboard 18 is a stationary space used to display advertising material via the

display device **20** which may be a computer video display such as an LCD panel, an LED panel, a projecting device utilizing digital light processing device or a cathode ray tube (CRT). The processor **26** controls logic and events sequence of the billboard **18** and display device **20** of the display location **12**. Communication between each display location **12** and the server **14** is achieved via the communicator **22**. In the preferred embodiment, the communicator is a modem. The display location **12** may also be connected to the server **14** through an Internet Service Provider **19** via a virtual private network session.

Turning to Figure 2, a more detailed schematic of the software modules of the processor **26** and the server **14** is provided. The processor **26** comprises operating system software **28** which executes display software **30**, local controller software **32**, communication software **34**, object manager software **36** and FTP/VPN transfer software **38**. The operating system software **28** provides support to the billboard **18** based on micro-kernal technology with message passing. The display software **30** enables decoding, decompression and display of images, animations and video on the display device **20**. The local controller software **32** checks validity of the advertising material (in the form of at least one image object) and sends the material to the display software **30**. The validity checks and displays progress through subsequent time slots up to the end of a display cycle and re-starts. The validity check relates to expiration date and time. If the expiration time of an image object allocated to the current time slot is shorter than a predefined time window, the local controlled software **32** sends a signal to the object manager **36**. The object manager software **36** triggers communication module **34** to establish a communication channel with the server **14**. Finally, the FTP client software **38** executes FTP software once the communication channel is created. The FTP software assists in the downloading of information, including the image object for the following time slot, from the server **14**. This results in the display of a new image object when the subsequent time slot arrives in the next display cycle.

The server **14** comprises a distribution engine **40**, a slot allocator **42**, a transaction system **44**, a monitoring system **46**, a location identifier **48** and a central database **52**. Application engines stored on a web server **50** are accessed by an administrator, via an administrative computer **56**, or by an advertiser, via one of the input sources **16**. The server **14** and the application engines provide business logic which enable interaction of many advertisers with many consumers. The server **14** is separated from the Internet by a corporate firewall **59**. The corporate firewall **59** is configured such that only certain objects may pass through to the server **14** from the Internet **17**.

The distribution engine **40** uploads image objects from the input sources **16** and checks the objects for technical integrity before storing them in the central database **52** along with scheduling and display location information. The slot allocator **42** maintains and tracks available time slots at display locations **12**. The transaction system **44** enables payments, cancellations and tracks orders and invoice status. The monitoring system **46** allows for real-time viewing, on an input source **16**, the content being displayed on the billboard **18** at the display location **12**. The location identifier **48** allows advertisers to search the central database **52** for description, statistical and technical information on each display location **12**. The central database **52** also stores data for use by the distribution engine **40**, the slot allocator **42**, the transaction system **44** and the monitoring system **46**.

Several services are located between the corporate firewall **59** and a main firewall **58**. These services secure the connection between the input source **16** and the server **14**. The services includes the web server **50**, an FTP/VPN server **51**, a security module **53**, a communications module **55**, a personalization module **57** and a context service module **61**.

The web server **50** passes html pages dynamically created by the server **14** when requested by an input source **16**. The FTP/VPN server **51** opens, closes and maintains file transfer channels between the input sources **16** and the server **14**. Security module **53** maintains and verifies user profiles, names, roles, passwords, server access privileges and history logs of actions performed by the input source **16**. Communication module **55** enables dial in by display locations and translates file types from the processor **26** to the server **14**. Personalization module **57** maintains user profile data and creates html pages with a personalized look for the advertiser during the login session. Context module **61** tracks the history of past login sessions and returns an html page reflecting the stage of a business process from a previous login. Administrative functions for these modules are performed by a system administrator via the administration computer **56**.

Turning to Figures 3 - 6, flowcharts outlining various aspects of the present invention are provided. Firstly, an advertiser accesses the server **14** via one of the input sources **16**. After logging in (step **60**), the advertiser can either search a specific display location **12** (step **62**) or submit pre-requisite criteria for a display location **12** (step **64**). If the advertiser decides to search a specific display location **12**, the advertiser then reviews data corresponding to the display location **12** (step **66**). This data may include address of physical location, size, display specification of the billboard, traffic data at the location, and demographic data related to the geographical location. After reviewing the data, the

advertiser reviews the available time slots, provided by the slot allocator **42**, (step **68**) and then subscribes to an available time slot to display the advertisement (step **70**). A flowchart outlining the operation of the slot allocator **42** is shown in Figure 4. Alternatively, if the advertiser decides to submit criteria for a display location **12** (step **64**), the advertiser then

5 proceeds to execute a selection routine (step **72**). This allows an advertiser to select a display location **12** based on pre-requisite criteria such as volume of traffic at the location and time slots available at the display location. After the selection routine has been executed, the advertiser reviews the results (step **74**) and selects a display location **12** (step **76**). The advertiser then reviews the display location data (step **66**), reviews available time slots (step

10 **68**) and subscribes to a time slot (step **70**).

After subscribing to a time slot, the advertiser uploads the advertising material to the server **14** (step **78**).

Once the advertising material is uploaded to the server **14**, the distribution engine **40** reviews the information for technical integrity (step **80**). After checking for

15 technical integrity, the advertising material is reviewed for content integrity by the administrator (step **82**). If the advertising material does not pass the content integrity test, the advertiser is informed and is requested to amend the advertising material. Otherwise, the advertising material is approved and stored in the central database **52** (step **84**). The advertiser is then notified that the advertising material has been stored (step **86**). While the

20 notification is being sent (step **88**), a financial transaction is executed (step **90**). The financial transaction may either be payment for the selected time slot (step **92**) or a check of the time remaining for a previously purchased time slot (step **94**). Upon confirmation of payment, the image object is ready to be uploaded to the display location **12** (step **96**). The image object must be uploaded to the display location **12** prior to the expiry of the previous time slot.

Turning to Figure 4, when an advertiser requests time slot information (step **96**), the central database **52** is queried (step **98**). The available time slots are then displayed on the input source **16** (step **100**). After the advertiser subscribes to a time slot (step **102**), the database **52** is updated with the new subscription (step **104**) and the time slot is deemed allocated (step **106**).

Turning to Figure 5, a flowchart outlining financial transactions is shown. When the advertiser executes a financial transaction (step **90**), the transaction module **44** performs two functions. The transaction module **44** calculates transaction fees (step **108**) and

aggregates air time information (step **110**) where more than one time slot on more than one display location has been subscribed to by a single advertiser.

After the transaction module **44** calculates transaction fees (step **108**), an invoice is then sent to the advertiser electronically or by regular air mail (step **112**). After payment is received (step **114**), credit is applied to the server operator (step **116**).

In parallel, the transaction module **44** aggregates air time information (step **110**), invoices are then aggregated (step **118**). An invoice is then sent (step **120**) and once payment is received (step **122**), a service fee is subtracted (step **124**). The server operator is credited (step **126**) and the payment is desegregated to different display location owners (step **128**). The display location owners are then credited (step **130**).

It may be also possible for advertisers to monitor their advertising material at the display location **12** via one of the input sources **16**, as shown in Figure 6. After monitoring is requested (step **132**), the central database **52** is queried (step **134**). The advertising material is then retrieved from the central database **52** (step **136**), converted to an html file (step **138**) and forwarded to the advertiser (step **140**).

It will be appreciated that, although only one embodiment of the invention has been described and illustrated in detail, various changes and modification may be made. One such modification is that communication between the input sources **16** and the server **14** and the display location **12** may be via any type of network and does not have to be restricted to the Internet. For example, a cellular network or even a radio network. All such changes and modifications may be made without departing from the spirit and scope of the invention as defined by the claims appended herein.